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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/955,235      | 09/17/2001  | Achintya K. Bhowmik  | 042390.P12043       | 8320             |

7590

12/18/2002

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EXAMINER

SONG, SARAH U

ART UNIT

PAPER NUMBER

2874

DATE MAILED: 12/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |   |  |
|------------------------------|--------------------------------------|---|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>09/955,235 | <b>Applicant(s)</b><br>BHOWMIK, ACHINTYA K. |  |
|                              | <b>Examiner</b><br>Sarah Song        | <b>Art Unit</b><br>2874                     |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19-21 is/are allowed.
- 6) ☒ Claim(s) 1-18 and 22-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
     If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:  
         1. ☐ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
     \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
     a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____.  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The prior art documents submitted by the applicant in the Information Disclosure Statement filed on January 10, 2002 have all been considered and made of record (note the attached copy of form PTO-1449).

### ***Drawings***

2. This application has been filed with four (4) sheets of drawings, which have been approved by the Examiner.

### ***Specification***

3. The disclosure is objected to because of the following informalities: page 8, line 23, change "facer" to -facet--.

Appropriate correction is required.

### ***Claim Objections***

4. Claims 1 and 19 are objected to because of the following informalities: In claim 1, line 5, "introduced" should read -introduces-. In claim 19, line 3, "fact" should read -facet- and at the end of line 3, the apostrophe should be a semicolon.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-3, 6, 7, 10-12, 15, 16, 22, 23, 25-27, 29 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Doerr et al. (U.S. Patent 5,987,050). Doerr et al. disclose a laser transmitter based on a coupler and having a controlled output port comprising: a resonant optical cavity having an input port and an output port; and a phase modulator disposed within the optical cavity, the phase modulator having an input port and an output port respectively coupled to the input port and the output port of the optical cavity, wherein the phase modulator introduces a phase shift in a portion of an optical signal propagating in the optical cavity while the component is propagating in one direction, and introduces a phase shift in another portion of the optical signal propagating in another direction. See Figure 1 and column 1, lines 49-54. Doerr et al. disclose an optical cavity; means 101 for propagating an optical signal into the optical cavity, means 120 for causing a portion of the optical signal to propagate in one optical path R1 and another portion of the optical signal to propagate in another optical path R3; means P1 and P3 for selectively introducing a phase difference between the portions of the optical signal; means 120 for combining the portions of the optical signal; and means L1 and L3 for propagating a portion of the combined signal out of the optical cavity. The method steps are thus inherent.

- 7. Regarding claims 2, 11, 25 and 29, note column 1, lines 49+.
- 8. Regarding claims 3, 12, 26 and 30, note column 3, lines 8-12.
- 9. Regarding claims 6 and 15, note Y-coupler (L2, R1, R3).
- 10. Regarding claims 7 and 16, note reflective facets 107 and 108.

***Claim Rejections - 35 USC § 103***

- 11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2874

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 4, 5, 8, 9, 13, 14, 17, 18, 24 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doerr et al. Doerr et al. do not specifically disclose thermo-optic phase shifters or stress-optic phase shifters. However, thermo-optic phase shifters and stress-optic phase shifters were well known in the art at the time of the invention. It would have been an obvious matter of design choice to use either electro-optic, thermo-optic or stress-optic phase shifters, since applicant has not disclosed that the particular phase shifter solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with any well-known phase shifter. Doerr et al. also do not specifically disclose a plurality of adjoining layers having refractive indices alternating between higher and lower refractive indices, or reflective gratings. However, plurality of adjoining layers having refractive indices alternating between higher and lower refractive indices, and reflective gratings were well known reflectors in the art at the time of the invention. It would have been an obvious matter of design choice to use either a plurality of adjoining layers having refractive indices alternating between higher and lower refractive indices, or reflective gratings, since applicant has not disclosed that the particular reflector solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with any well known reflector.

***Allowable Subject Matter***

13. Claims 19-21 are allowed.

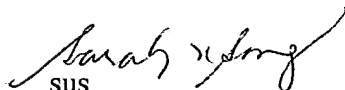
Art Unit: 2874

14. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record does not reasonably disclose or suggest, either alone or in combination, all of the limitations of claim 19. Claims 20 and 21 are allowable as depending from claim 19.


*Conclusion*

15. Any inquiry concerning the merits of this communication should be directed to Examiner Sarah Song at telephone number 703-306-5799. Any inquiry of a general or clerical nature, or relating to the status of this application or proceeding should be directed to the receptionist at telephone number 703-308-0956 or to the technical support staff supervisor at telephone number 703-308-3072.



SUS

December 15, 2002



Rodney Bovernick  
Supervisory Patent Examiner  
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